entry point of the BTE tunnel and T_2 denotes temperature at the blue-purple nose. The thermoelectric potential generated can power the sensing system and a capacitor **474** inserted into the system can be used to collect and store the energy and MCU **476** is adapted to controls the delivery of energy as needed for measuring, processing and transmitting the signal.

It is understood that other means to convert thermal energy from the BTE tunnel into electricity can be used. It is also understood that the surface of the eye and caruncle in the eye can provide a thermal gradient and Seebeck effect, however it is much less desirable than using the skin at the end of the BTE tunnel since hardware and wires touching the surface of the eye and/or coming out of the eye can be quite uncomfortable and cause infection.

Contrary to that numerous support structures disclosed in the present invention including eyeglasses can easily be adapted to provide in an unobtrusive manner the power generating system of the invention, for example by using a support structure such as eyeglasses for positioning the hot junction at the BTE site using medial canthal pads and positioning the cold junction on the nose using regular nose pads of eyeglasses. It is also understood that although the power generating system using Brain Thermal Energy was designed for powering the sensing system of the present invention, any other electrical device could be adapted to be supplied with energy derived from the Brain Thermal Energy tunnel.

Additional embodiments include support structures to position the sensor at the BTT site of animals. Many useful applications can be achieved, including enhancing artificial insemination for mammalian species by detecting moment of ovulation, monitoring herd health by continuous monitoring of brain temperature, detection of parturition and the like.

Accordingly, FIG. **40** is a perspective view of a preferred embodiment showing an animal **101** with sensor **480** positioned at the BTT site with wire **482** connecting sensor **480** with a microelectronic package **484** containing transmitting means, processing means, and power source in the eyelid pocket **486** of animal **101**. Signal from microelectronic package **484** is preferably transmitted as radio waves **489**. The signal from the transmitter in package **484** can be conveyed to a GPS collar allowing the identification of the animal having a high temperature associated with the localization of said animal by GPS means. Whenever there is an increase in brain temperature identified by the sensing means **480**, the signal of high temperature activates the GPS collar to provide the localization of the affected animal. Alternatively the remote radio station receiving waves **489** activate the GPS system when the abnormal signal is received. In this case, the transmitter in package **484** only sends the signal to the remote station, but not to the GPS collar.

FIG. **41**A is a perspective view of a portable support structure **490** positioning sensor **492** in contact with the skin **494** at the BTT site for measuring biological parameters. Support structure **490** incorporated as a thermometer with a contact sensor **492** is held by a second person **17** for positioning the sensor **492** on the skin **494** and performing the measurement. FIG. **41**B is a perspective view of a portable support structure **496** with walls **500** positioning non-contact sensor **498** such as a thermopile with a field of view that matches in total or in part the geometry and dimension of the skin area at the end of the BTT. Support structure **496** incorporated as an infrared thermometer is held by a second person **105** for positioning the sensor **498** and measuring biological parameters. Although it is understood that pointing an infrared detector to the BTT site can be used in accordance with the invention, the temperature measured is not as clinically useful because of the ambient temperature. Therefore, the support structure **496** contains walls **500** that create a confined environment for thermal radiation to reach sensor **498** from the skin over the tunnel. Walls **500** of the support structure are adapted to match the geometry of the tunnel and to provide a cavity **499** with the boundaries consisting of the sensor surface **492** and the skin area **493** viewed by said sensor **498**, in a similar manner as described for FIG. **37**.

It is also understood that many variations are evident to one of ordinary skill in the art and are within the scope of the invention. For instance, one can place a sensor on the skin at the BTT site and subsequently place an adhesive tape on top of said sensor to secure the sensor in position at the BTT site. Thus in this embodiment the sensor does not need to have an adhesive surface nor a support structure permanently connected to said sensor.

It is understood that any electrochemical sensor, thermoelectric sensor, acoustic sensor, piezoelectric sensor, optical sensor, and the like can be supported by the support structure for measuring biological parameters in accordance with the principles of the invention. It is understood that sensors using amperometric, potentiometric, conductometric, gravimetric, impedimetric, systems, and the like can be used in the apparatus of the invention for the measurement of biological parameters. It is also understood that other forms for biosensing can be used such as changes in ionic conductance, enthalpy, and mass as well as immunobiointeractions and the like.

The foregoing description should be considered as illustrative only of the principles of the invention. Since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and, accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

I claim:

1. A support structure for use in measuring biological parameters in a brain temperature tunnel, said support structure being mounted adjacent to the brain temperature tunnel, said support structure comprising

a body,

said body including a nose piece for a pair of eyeglasses,

said nose piece including an extension having a temperature sensor configured to measure temperature signals produced on the skin at an end of the brain temperature tunnel, and

said body locating said nose piece so that the extension is positioned adjacent to a medial corner of an eye above a medial canthal tendon and in a medial third of an upper eyelid when said body is worn by an individual,

said body including a reporting device, said reporting device being configured to transmit a signal based upon a measurement by the sensor at the brain temperature tunnel.

2. The support structure as claimed in claim **1**, wherein said body includes a visual display connected to the reporting device.

3. The support structure as claimed in claim **2**, wherein said visual display includes a plurality of lights.

4. The support structure as claimed in claim **1**, wherein said body includes a sweat sensor.

5. The support structure as claimed in claim **4**, wherein said sweat sensor includes an electrode generating a current proportional to an amount of analyte found in fluid contacting the sweat sensor.

6. The support structure as claimed in claim **1**, wherein said sensor is in a surface of said nose piece.